

What is claimed is:

1. A substrate processing apparatus into which product substrates to be processed are transferred by a product substrate carrier for carrying a maximum M number of the product substrates, the apparatus comprising:

a housing; and

a process tube located in the housing for performing a batch process on the product substrates, the product substrates representing substrates to be used in manufacturing actual devices,

wherein the number of the product substrates processed in one batch process is set to be less than or equal to M, M being a positive integer, and all the product substrates contained in the product substrate carrier are processed in the process tube at a same time.

2. The substrate processing apparatus of claim 1, wherein said each substrate carrier is a pod having a door and the apparatus further comprises at least one pod door opener for opening/closing the door of the pod, at least one loading port whose number corresponds to that of said at least one pod door opener and at least one pod stage for mounting the pod thereon, wherein said at least one loading port and said at least one pod stage are arranged outside of the housing.

3. A method for performing a predetermined batch process to

substrates, the substrates including product substrates which are used for manufacturing final products, the method comprising the steps of:

transferring the product substrates by using product substrate carriers, the product substrate carriers having a capacity of a predetermined number of substrates; and

performing the predetermined batch process on the product substrates,

wherein a number of the product substrates processed during the predetermined batch process are set to be less than or equal to the predetermined number of the substrates and all of the product substrates contained in one product substrate carrier is processed in the predetermined batch process.

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4. A method for manufacturing semiconductor devices by performing a predetermined batch process to substrates, the substrates including product substrates which are used for manufacturing final products, the method comprising the steps of:

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transferring the product substrates by using product substrate carriers, the product substrate carriers having a capacity of a predetermined number of substrates; and

performing the predetermined batch process on the product substrates,

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wherein a number of the product substrates processed

during the predetermined batch process are set to be less than or equal to the predetermined number of the substrates and all of the product substrates contained in one product substrate carrier is processed in the predetermined batch process.

5        5. A substrate processing apparatus into which substrates to be processed are transferred by one or more pods, each pod having a door, the apparatus comprising:

10        a housing;

         a process tube located in the housing;

         at least one pod door opener for opening/closing the doors of the pods;

         at least one loading port whose number corresponds to

15        that of said at least one pod door opener;

         at least one pod stage for mounting the pods thereon;

         and

         a pod transfer device for carrying the pods between said

         at least one pod stage and said at least one loading port,

20        wherein said at least one loading port and said at least one pod stage are arranged outside the housing.

         6. The substrate processing apparatus of claim 5, wherein the pod transfer device is located above the loading port

25        and the pod stage.

7. The substrate processing apparatus of claim 6, wherein the loading port is neighboring with the pod stage.

8. The substrate processing apparatus of claim 7, wherein  
5 more than one pod stages are provided.

9. The substrate processing apparatus of claim 8, wherein the loading port is located between two pod stages.

10 10. The substrate processing apparatus of claim 9, wherein, one of said pod stages is provided for a pod accommodating product substrates and the other pod stage is provided for a pod accommodating dummy substrates.

15 11. A method for processing substrates in a substrate processing apparatus having a housing, comprising the steps of:

transferring a pod accommodating a plurality of substrates to a pod stage, the pod having a door;

20 carrying the pod from the pod stage to a loading port by a pod transfer device;

opening the door of the pod mounted on the loading port by a pod door opener;

loading the substrates accommodated in the pod to a  
25 process tube; and

performing a predetermined process on the substrates in

the process tube

wherein the pod stage and the loading port are located outside the housing and the process tube located inside the housing.

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12. A method for manufacturing semiconductor devices in a semiconductor manufacturing apparatus having a housing, comprising the steps of:

transferring a pod accommodating a plurality of  
10 substrates to a pod stage, the pod having a door;

carrying the pod from the pod stage to a loading port by a pod transfer device;

opening the door of the pod mounted on the loading port by a pod door opener;

15 loading the substrates accommodated in the pod to a process tube; and

performing a predetermined process on the substrates in the process tube,

20 wherein the pod stage and the loading port are located outside the housing and the process tube located inside the housing.